



Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

HUMAN EFFECTIVENESS DIRECTORATE RESEARCH SPARKS INDUSTRY MILESTONE



The ability to conduct operations regardless of terrain or weather conditions is critical to the warfighter and commercial pilots. Synthetic vision technology provides crews with greater situation awareness regarding terrain, threats, and navigation.



Air Force Research Laboratory
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Accomplishment

As part of a Dual-Use program, research by the Human Effectiveness Directorate, in conjunction with Rockwell Collins, led to the first-ever industry demonstration of low-level military approaches using synthetic vision technology. Directorate personnel conducted the first flight tests using synthetic vision technology displays for a zero decision-height/zero visibility approach to landing blind at an assault airstrip.

Background

Military applications of synthetic vision technology include flying complex approaches using satellite-based navigation systems to facilitate landing at austere locations in reduced visibility conditions. Other military applications include reducing controlled flight into terrain (CFIT) incidents, avoiding noise abatement areas, and increasing air traffic throughput at airports.

The directorate's flight evaluation of synthetic vision technology had a twofold objective: (1) enable US Air Force aircraft to fly in instrument meteorological conditions as precisely and with as much terrain awareness as in visual meteorological conditions, and (2) prevent CFIT accidents. The directorate's technical approach was to develop and demonstrate in flight, a heads-up display, incorporating primary flight information, command path guidance, and synthetic terrain suitable for flying complex precision approaches in varying visibility conditions.

While synthetic vision technology has military applications, it also allows the blending of sensor and synthetic imagery for the commercial success of civil applications. With the recent award of two Dual-Use program contracts for the topic "Integration of Real-time Information with Synthetic and Enhanced Vision Displays," the directorate will continue its collaborative research efforts with industry.

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-HE-16)